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# MSAPC ADVISORY CIRCULAR

U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF AIR AND WATER PROGRAMS • OFFICE OF MOBILE SOURCE AIR POLLUTION CONTROL

A/C NO. 12-A

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SUBJECT: Break-In and Other Scheduled Maintenance

A. Purpose

The purpose of this Advisory Circular is to discuss the conditions under which scheduled break-in maintenance, idle reset, and other scheduled maintenance provided for in 40 CFR 85.075-6(a)(5)(iii)<sup>1</sup> will be permitted on light-duty motor vehicles and heavy-duty engines and to specify testing requirements associated with such maintenance. This Advisory Circular supersedes Advisory Circular No. 12, which should be discarded.

B. Background

1. Several manufacturers have requested permission to perform break-in maintenance on durability-data and emission-data vehicles and engines under the authority of 40 CFR 85.075-6(a)(5)(iii)<sup>1</sup> beyond the scope of the maintenance permitted by Advisory Circular No. 12. Advisory Circular No. 12 was limited to mechanical tappet adjustment on durability-data vehicles and engines only. The nature of the break-in maintenance requested has extended beyond mechanical tappet adjustment to include additional maintenance such as: engine bolt torque adjustment, drive belt adjustment, and idle rpm and mixture adjustment.

2. Break-in maintenance normally is scheduled in the owner's manual and is recommended to the vehicle owner and sometimes even required for warranty validation. Some manufacturers have indicated that they can provide adequate data that break-in maintenance is or will be performed on vehicles in use.

3. Break-in maintenance that is actually performed in the field should logically be performed on both emission-data and durability-data vehicles and engines, to make them more representative of actual customer usage.

<sup>1</sup>Reference to 40 CFR 85.075-6(a)(5)(iii) for gasoline-fueled light-duty vehicles also applies to:

- 40 CFR 85.175-6(a)(1)(vi) for diesel light-duty vehicles
- 40 CFR 85.275-6(a)(5)(iii) for gasoline-fueled light-duty trucks
- 40 CFR 85.775-6(a)(1)(vii) for gasoline-fueled heavy-duty engines
- 40 CFR 85.875 & 975-6(a)(1)(vii) for diesel heavy-duty engines.

C. Applicability

The provisions of this Advisory Circular are applicable to 1975 and later model years for both emission-data and durability-data vehicles or engines representing gasoline-fueled light-duty vehicles, gasoline-fueled heavy-duty engines, and diesel heavy-duty engines. The break-in maintenance will apply only to scheduled maintenance or idle reset to be performed prior to 5,000 miles (for light-duty vehicles and trucks) or 125 hours (for heavy-duty engines) of operation. The criteria for approval and the associated testing requirements listed here apply to all scheduled maintenance applied for under 40 CFR 85.075-6 (a)(5)(iii)<sup>1</sup>.

D. Criteria for Approval of Subject Scheduled Maintenance.

1. The basic criteria for approval of the subject scheduled maintenance is assurance that the maintenance is consistent with recommended field practices and is likely to be performed on in-use vehicles. Two separate situations may exist for providing such assurance. In the first case, adequate data may exist from previous years to substantiate that the maintenance was performed on a high percentage of in-use vehicles or engines. In the second case, historical data do not exist either because the maintenance is a new requirement or is significantly different from previous years, or because data do not substantiate that a high percentage of in-use vehicles or engines receive the maintenance.

2. Adequate Historical Data. Data from previous model years which are used to support the likelihood of the break-in maintenance being performed on future model year in-use vehicles or engines must show that the maintenance was performed on a number approaching 90 percent of the in-use vehicles or engines of the respective engine family. These data may be used in applying for approval of maintenance which is identical to, or very nearly the same as, maintenance for which past model year data exist. Some examples of data which might be appropriate are:

- (a) Dealer warranty validation data.
- (b) Surveys of representative samples of dealers or independent service facilities.
- (c) Owner survey data.

3. Inadequate Historical Data. In the case in which there are inadequate data to substantiate that the subject maintenance was performed on a high percentage of the in-use vehicles or engines in past model years, a reasonable assurance will have to be given that the maintenance is likely to be performed in the future.



2. Durability-Data Vehicles and Engines. Under the authority of 40 CFR 85.075-6(d)<sup>2</sup>, the tests before and after scheduled maintenance which is performed on durability-data vehicles prior to 3,750 miles (117 hours for heavy-duty engines)<sup>3</sup> are waived. Under the same authority, the test before scheduled maintenance, which is performed on durability-data vehicles after 3,750 miles and prior to 5,250 miles (after 117 hours and prior to 133 hours for heavy duty engines)<sup>4</sup> is waived. The after maintenance test must be run and the results used in the deterioration factor calculation in accordance with 40 CFR 85.075-28(c)(1)(i)(b)<sup>2</sup>.

3. If the subject scheduled maintenance is performed on the durability-data vehicle after 5,250 miles (133 hours for heavy-duty engines)<sup>4</sup>, both before and after maintenance tests must be run and the results used in the deterioration factor calculation in accordance with 40 CFR 85.075-28(c)(1)(i)(b)<sup>2</sup>.

4. Tests Run After Notification. Results of tests waived by Section E-2 of this Advisory Circular, if run by a manufacturer after notification (by issuance of this Advisory Circular) that such tests are waived, must be used in the calculation of the deterioration factor. Tests conducted within the period between the date of this Advisory Circular and 15 days thereafter will not be considered to be tests run after notification.

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<sup>3</sup>The mileage figure 3,750 is the minimum mileage at which the vehicle's emission levels are considered stabilized. (4,000 miles minus the 250-mile tolerance). The hour figure 117 is the minimum running time at which the heavy duty engine's emission levels are considered stabilized (125 hours minus the 8-hour tolerance).

<sup>4</sup>The mileage figure 5,250 is the maximum mileage at which the early idle adjustment is permitted for durability-data vehicles (5,000 miles plus the 250-mile tolerance). The hour figure 133 is the maximum running time at which the early idle adjustment is permitted for durability-data engines (125 hours plus the 8-hour tolerance).



Where the proposed maintenance is not the same as that maintenance for which historical data exist, or the historical data do not adequately support that a number approaching 90 percent of the in-use vehicles or engines received such maintenance, the historical data may be used to help substantiate that such maintenance will be performed if the incentive for having the maintenance performed can be shown to be comparable to or greater than the incentive for having the maintenance done in the past. Some areas which might be appropriate to indicate incentive for customers to have the subject maintenance performed are:

- (a) Free maintenance.
- (b) Combination of the subject maintenance with all other scheduled maintenance in one visit to the dealer.
- (c) Free or low cost service associated with the subject maintenance (i.e., break-in service to emission and engine systems).
- (d) Promotion to the consumer of the need for maintenance and its availability.

4. Equipment and Facilities. There must be a showing that any specialized equipment and facilities required for the performance of the subject maintenance are or will be available at dealerships and other service outlets.

5. Recommendation to Ultimate Purchaser. The subject maintenance must be recommended to the ultimate purchaser of the motor vehicle in writing.

E. Testing Associated with Approved Scheduled Maintenance.

1. Emission-Data Vehicles and Engines. Under the authority of 40 CFR 85.075-6(b)<sup>2</sup>, the idle speed reset and any scheduled maintenance on the emission-data vehicle shall be performed prior to 4,000-mile testing (125 hour testing for heavy-duty engines). Under the authority of 40 CFR 85.075-6(d)<sup>2</sup>, the before and after maintenance tests associated with idle speed reset and scheduled maintenance on the emission-data vehicle are waived.

<sup>2</sup>References to sections of 40 CFR 85.075 for gasoline-fueled light-duty vehicles also apply to corresponding sections of 40 CFR 85.175 (diesel light-duty vehicles), 85.275 (light-duty trucks), 85.775 (gasoline-fueled heavy-duty engines), and 85.875-85.975 (diesel heavy-duty engines).